

## CLAIMS

1. An artificial turf system comprising:
  - a base that is readily constructed, at least in part, from naturally occurring ground elements that are present upon initiation of the construction of the base, the base being
  - 5 constructed to include a drainage mechanism that is disposed near the surface of the base; and
  - a turf assembly that is laid out upon the base and that is constructed to pass fluid therethrough such that the fluid is specifically directed to the drainage mechanism of the base as it moves through the turf assembly, the turf assembly comprising a plurality of layers including:
    - an impermeable moisture barrier layer that is laid upon the base such that the
    - 10 fluid may only pass to the base at predetermined locations that correspond to the drainage mechanism;
    - a drainage layer disposed upon the impermeable moisture barrier layer that creates an area where fluid is free to pass to the impermeable moisture barrier layer and ultimately to the drainage mechanism of the base;
    - 15 a filtering layer disposed upon the drainage layer that filters out undesirable particles from the fluid as the fluid passes through the filtering layer and into the drainage layer,
    - Antecedent basis* the area between the filtering layer and the impermeable moisture barrier layer being permanently available whether or not fluid is passing therethrough; and
    - a turf mat disposed upon the filtering layer having grass on an upper surface to
    - 20 give the artificial turf system the appearance of a completely natural grass field.
2. The artificial turf system of claim 1 wherein the grass comprises synthetic material that has been formed to appear like natural grass.

3. The artificial turf system of claim 1 wherein the grass comprises a mixture of natural and synthetic material to form a layer that appears like a completely natural grass surface.
4. The artificial turf system of claim 1 wherein the drainage layer comprises a plastic layer having evenly distributed protrusions of the same height.
5. The artificial turf system of claim 1 wherein the drainage layer comprises a spring-like distribution of elongate plastic material.
6. The artificial turf system of claim 1 wherein the filtering layer is a woven geotextile.
7. The artificial turf system of claim 1 wherein the filtering layer is a non-woven geotextile.
8. The artificial turf system of claim 1 wherein the impermeable moisture barrier layer, the filtering layer, and the drainage layer are positioned separately.
9. The artificial turf system of claim 1 wherein the impermeable moisture barrier layer, the filtering layer, and the drainage layer are a single unit.
10. The artificial turf system of claim 1 wherein the base comprises natural soil.
11. The artificial turf system of claim 10 wherein the base further comprises at least one of a plurality of stabilizing agents.
12. The artificial turf system of claim 11 wherein the stabilizing agent is selected from the group consisting of lime, fly ash, stone, and enzyme.
13. The artificial turf system of claim 1 wherein the turf assembly and base combination is substantially flat in order to provide a playing surface for a plurality of sporting activities.

14. A method for assembling a pre-engineered synthetic turf system comprising:  
forming a base having a drainage system built in for draining fluids away from the pre-engineered synthetic turf system; and

laying out a turf assembly upon the base such that fluids contacting the turf assembly  
5 pass into the drainage system of the base through various layers of the turf assembly, the  
various layers of the turf assembly including:

an impermeable moisture barrier layer disposed upon the base such that fluid  
passing through the turf assembly reaches the base in certain predetermined areas only;

a drainage layer disposed upon the moisture barrier layer that provides an open  
10 space for passage of fluid, the open space remaining open even when fluid is not passing  
therethrough;

a filtering layer disposed upon the drainage layer to prevent passage of  
undesirable particles in the fluid into the drainage layer; and

an artificial turf layer having grass on an upper surface, the grass providing the  
15 turf assembly with an appearance of a completely natural playing field, the drainage layer  
providing support for the artificial turf layer such that the turf assembly has the feel of a  
completely natural playing field.

15. The method of claim 14 wherein the impermeable moisture barrier layer, the  
drainage layer, and the filtering layer are combined into a single unit that may be rolled out as a  
20 single layer.

16. The method of claim 15 wherein said laying out the turf assembly comprises:  
rolling the single unit onto the base such that the base is completely covered with the

single unit and fluid may flow to the base only through specific predetermined locations in the turf assembly; and

rolling the artificial turf layer onto the single unit so that a field is formed that appears similar to a natural grass surface.

5        17. A pre-engineered synthetic turf system comprising:

a base having a drainage system built in for draining fluids away from the pre-engineered synthetic turf system; and

a turf assembly disposed upon the base such that fluids contacting the turf assembly pass into the drainage system of the base through various layers of the turf assembly, the

10      various layers of the turf assembly including:

an impermeable moisture barrier layer disposed upon the base such that fluid passing through the turf assembly reaches the base in certain predetermined areas only;

a drainage layer disposed upon the impermeable moisture barrier layer that provides an open space for passage of fluid, the open space remaining open even when fluid is

15      not passing therethrough;

a filtering layer disposed upon the drainage layer to prevent passage of undesirable particles in the fluid into the drainage layer; and

an artificial turf layer having grass on an upper surface, the grass providing the turf assembly with an appearance of a completely natural playing field, the drainage layer

20      providing support for the artificial turf layer such that the turf assembly has the feel of a completely natural playing field.

18. The pre-engineered synthetic turf system of claim 17 wherein the base is formed as

a smooth surface with a slightly curved cross section.

19. The pre-engineered synthetic turf system of claim 17 wherein the drainage layer comprises a solid plastic material that is shaped as a plurality of evenly distributed protrusions, each of the plurality of protrusions being of the same height.

5        20. The pre-engineered synthetic turf system of claim 17 wherein the drainage layer comprises a conglomeration of elongate plastic material that is distributed across the drainage layer such that the elongate plastic material provides the drainage layer with a uniform height across the pre-engineered synthetic turf system.